

Morgal-11-CIP

Submission Date: March 16, 2009

Reply to Examiner's Answer of January 16, 2009



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In application of: **Richard Morgal**

Confirmation No.: **1563**

Serial No.: **10/821,593**

Group Art Unit: **1795**

Filed: **April 9, 2004**

Examiner: **Gardner, Shannon M.**

For: **METHOD AND APPARATUS FOR SOLAR ENERGY COLLECTION**

In accordance with 37 C.F.R. 1.8, I hereby certify that this correspondence and all its attachments are being deposited on **Monday, March 16, 2009** with the U.S. Postal Service with sufficient postage as First Class mail in an envelope addressed to: Mail Stop Appeal Brief - Patents, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

William C. Boling 3/16/2009
William C. Boling Date

Mail Stop Appeal Brief - Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

REPLY BRIEF TRANSMITTAL LETTER

Sir:

Transmitted herewith is a Reply Brief (11 pages) timely filed within two months of an Examiner's Answer issued January 16, 2009 in respect of the above-identified application. This Reply Brief is an addendum to the previously-filed Appeal Brief, exclusively addressing certain contentions relied upon by the Examiner in the Examiner's Answer.

Respectfully submitted,

Date: 3/16/2009
March 16, 2009

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William C. Boling 3/16/2009
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Commissioner for Patents
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REPLY BRIEF

Sir:

This Reply Brief responds within two months to an Examiner's Answer issued January 16, 2009, in respect of the above-identified application, and is thus timely filed. The Reply Brief exclusively addresses the specific contentions relied upon by the Examiner in the Examiner's Answer issued January 16, 2009, identifying numerous errors which require a conclusion that the rationale relied upon the Examiner does not, in fact, support the pending rejections.

Status of Claims is indicated on page 2.

Grounds of Rejection to be Reviewed On Appeal are identified on page 3.

Argument begins on page 4.

STATUS OF CLAIMS

Claims 1-14 are pending, and all stand rejected over Cluff in view of Laing.

Appeal is taken of the outstanding rejection of each of Claims 1-14.

GROUND OF REJECTION TO BE REVIEWED ON APPEAL

The following issues are presented for review:

Whether Claims 1-4, 7-10 and 13-14 are unpatentable under 35 USC 103(a) as obvious over Cluff (US 4,771,764) in view of Laing (US 5,445,177).

Whether Claims 5-6 and 11-12 are unpatentable under 35 USC 103(a) as obvious over Cluff in view of Laing and further in view of Genequand (US 4,238,246).

ARGUMENT

The Examiner identifies specific disclosure within the Cluff and Laing references, asserting that each feature required by Appellant's independent Claims 1 and 8 are found within such disclosure. The Examiner makes a number of assertions that particular features within Cluff constitute an example of features required by one of these claims, and relies upon those assertions to support the pending rejections. However, many of the Examiner's assertions are incorrect, and the rationale set forth by the Examiner consequently fails to support the Examiner's contention that either of these claims is obvious over Cluff in view of Laing. The rationale the Examiner sets forth to support the rejection of Claim 8 relies upon similarly fallacious assertions as those the Examiner relies upon to support the rejection of Claim 1. However, because the specific assertions in respect of Claim 8 are somewhat different from those in respect of Claim 1, remarks are set forth below first in respect of Claim 1, and then subsequently in respect of Claim 8.

Examiner's Mistaken Assertions In Respect Of Claim 1

Certain of the assertions upon which the Examiner relies, as set forth in section 9 of the Examiner's Answer beginning on page 3, are set forth below. Remarks set forth subsequent to each such assertion demonstrate that it is incorrect. Because the Examiner makes five specific assertions, each of which is mistaken, the Examiner's contentions entirely fail to justify the ground of rejection that relies upon them.

After introducing the preamble of Claim 1, the Examiner then continues with specific assertions, at least five of which are in error, as demonstrated in the following remarks.

First Mistaken Assertion. In a first specific assertion, the Examiner states that the solar converter apparatus of Cluff comprises (underlining added for emphasis): "a) a support structure (32) for floating on a liquid bath (34), the structure having: i) a substantially fixed relationship to an incoming light axis that is parallel to useful incoming light."

The Examiner appears to misapprehend the nature of support structure (32) of Cluff. In Figure 1 of Cluff the support structure (32) is indicated by a reference numeral in the lower right hand corner. Careful review of the drawing reveals that the platform (32) has a large flat surface with a circular shape as seen from above. It floats flat on pond 34, and is therefore always parallel to the surface of the earth beneath it (or, more precisely, perpendicular to a line from the

center of the earth), and is not tilted to face the sun. Platform (32) is not itself a solar collector, and does not have within it any photovoltaic or other solar energy conversion device. Instead, platform (32) provides support for "an array 31 of absorbers" (col. 3 line 37). The array 31 comprises (emphasis added) "a focusing flat plate collector panel 40 hingedly mounted on [the] platform" (col. 4 lines 17-19)¹.

As may be understood upon consideration of Figure 1, the platform (32) is rotated to adjust for the azimuth of the sun (see, *e.g.*, col. 3 lines 44-51, particularly line 51). However, the platform itself is certainly not tilted at an angle to point at the sun as the elevation of the sun changes throughout the day. Tilting would require that the large platform be raised on one side, and would drive the other side under water. Instead of tilting the platform (32), the angle of collector panels 40 is adjusted (on the flat top of the platform 32) to track the elevation of the sun (*e.g.*, col. 4 lines 52-61, col. 6 lines 3-10). While the panels (40) are constantly pointed at the sun and thus have "a substantially fixed relationship to an incoming light axis," the same is not true for the platform (32). To the contrary, the relationship of the light axis to the platform (32) changes constantly through the day. In particular, the elevation angle of the light axis from the sun, with respect to the platform (32), changes continuously throughout the day.

Thus, the Examiner is mistaken to assert that "the platform (32) [has] a substantially fixed relationship to an incoming light axis." Were it true, the angle of collector panels 40 would not change with respect to the platform 32.

Instead, the platform 32 is merely rotated about its center axis (a line perpendicular to the surface of the platform 32 that goes through the center of the platform). Because the platform 32 remains flat on the pond, its center axis points perfectly vertically at all times. The axis of the platform 32 is a line going through the center of the earth; the sun's elevation changes constantly with respect to that line from the earth's center as the day progresses. Consequently (and quite obviously), the sun is at an ever-changing angle with respect to the platform. Accordingly, the

¹ The platform is correctly item 32. Cluff once refers incorrectly to "platform 33" (col. 4 line 19), which is clearly a typographical error, because the items illustrated as items 33 in Figure 2 are clearly "flat plate solar lenses 33 that redirect the solar rays" as described at col. 3 lines 40-41, and "lenses 33 of the panels" as described at col. 4 lines 61-62. Cluff also once refers to "Platform 36" (col. 3 line 61), which is clearly another typographical error, because Figure 1 shows item 36 to be a motor, as it is described at, *e.g.*, col. 3 line 49 and col. 4 line 65. The platform is properly item 32, as it is illustrated in Figures 1 and 7, and as it is correctly described at col. 3 lines 38 and 44, col. 4 line 41, and col. 6 lines 5-6 and 25.

platform 32 does not have a substantially fixed relationship to an incoming light axis. This first specific assertion is thus incorrect, and therefore does not support the ground of rejection.

Second Mistaken Assertion. In a second specific assertion, the Examiner states: "iii) depicted in Figure 13 and 14 are guidance interface (32) features connecting the support structure/system of connecting rods to a guidance frame (63) that aligns the elevation rotation axis (64) at the fixed azimuth alignment angle to an azimuth of the source of incoming light axis with the source of incoming light/solar tracking (col.6; lines:40-47)."

A first error in this specific assertion arises because there is no support structure (32) in Figures 13 and 14. As may be seen in Figures 1 and 7, the support structure (32) floats upon the pond liquid (so that the top of the structure is above the liquid) The solar collector panels 40 are in turn mounted on top of the platform (32), where they are adjusted in angle to track the sun's elevation. Figures 13 and 14 have no support structure (32) to support the collector panels and keep them out of the liquid. Instead, in Figures 13 and 14 collector panels 61 (different from the collector panels 40 used on platform 32) are directly floated in the bath, and are tied together by an alignment framework.

Because there is no support structure (32) in Figures 13 and 14, the Examiner has, in the very middle of a rejection, jumped from a system illustrated in Figure 1 to a system illustrated in Figures 13 and 14. These two systems are only indirectly related. Appellant's Claim 1 requires (a) a support structure ...; (b) a photovoltaic disposed within the support structure ...; (c) a lens coupled to the support structure; and cooling that is effected through a wall of the support structure. The Examiner has asserted that the corresponding support structure in Cluff is structure (32) of Figure 1. It makes no sense for the Examiner to now refer to a completely different system (Figures 13, 14) that has no support structure (32). This second specific assertion is therefore improper at least because it relies upon a combination of incompatible systems. Moreover, the Examiner mislabels features of Figures 13 and 14 as "support structure (32)," which adds to the confusion. Accordingly, the rejection is improper due to the Examiner's reliance on this second specific assertion, which is incorrect (and confused).

Third Mistaken Assertion. In a third specific assertion, the Examiner states (underlining added for emphasis): "b) depicted in Figure 1 is at least one photovoltaic conversion

device (42) mounted within the support structure (32) and adapted for converting concentrated sunlight into electricity (col.5; lines: 52-56)."

Figure 7 provides detail of Figure 1 that clearly reveals the error in this third assertion. Photovoltaic devices 42 are disposed within collector panels 40, which in turn are mounted on top of platform 32. There is nothing "within the support structure (32)" except flotation and structural material (see col. 3 line 61 to col. 4 line 5)². Far from being "within" the platform 32, the photovoltaic devices are within another structure (collector panel 40) which is "arranged on [the top of] the platform 32" (col. 4 lines 39-41). Thus, the third assertion is incorrect. Accordingly, the rejection is improper because it relies on this third improper assertion.

Fourth Mistaken Assertion. In a fourth specific assertion, the Examiner states that Cluff discloses (underlining added for emphasis): "c) a lens (33) coupled to the support structure for guiding light that is parallel to the incoming light axis in Figure 1 and is received over a receiving region (40) toward a conversion device (42) that is mounted within the support structure (32) ..." The error in this fourth specific assertion is similar to the error described with respect to the third specific assertion: there is no conversion device, (42) or otherwise, mounted within the support structure (32). Support structure (32) is nothing more than a plain, floating platform, like a dock or a large disk made of floatable material (col. 3 lines 61-62, see also footnotes 1 & 2). The Examiner also relies on this fourth, incorrect assertion to support the rejection, and therefore the rejection is improper for this further reason.

Fifth Mistaken Assertion. In a fifth specific assertion, the Examiner states (underlining added for emphasis): "Cluff disclose [sic] the liquid bath/pool (34) (col.3; lines: 44-47) that is in contact with an exterior of the support structure (32) (Figure 1 & col. 3; lines: 21-26), but fails to disclose the liquid bath as the coolant."

The Examiner continues by contending that Laing teaches features that can be combined with Cluff such that the final element of the Appellant's Claim 1 is achieved, to wit (underlining added for emphasis): "the liquid bath is a coolant that provides primary cooling of the conversion device through thermal contact with an exterior of the support structure." The fifth assertion is

² As noted in footnote 1, "Platform 36" (col. 3 line 61) is a typographical error, and should actually be "Platform 32". Figure 1 shows item 36 to be a motor, as it is described at, e.g., col. 3 line 49 and col. 4 line 65. The platform is properly item 32, as it is illustrated in Figures 1 and 7, and as it is correctly described at col. 3 lines 38 and 44, col. 4 line 41, and col. 6 lines 5-6 and 25.

improper because, by its terms, it renders it quite impossible for the Examiner to contend that any teaching, of Laing or anyone else, could be used to modify Cluff to achieve that last element.

The platform 32 is in contact with the liquid of the bath on its bottom and part of its sides. However, as noted in the preceding remarks, in Cluff the conversion device(s) 42 are disposed within collector panel(s) 40, which in turn are mounted on the top of the support platform (32), which is above the surface of the water as may be seen in Figure 1. The collector panel(s) 40 thus are not in the liquid, or in significant thermal contact with platform (32). It is therefore impossible for thermal contact between the liquid and the support platform (32) to cause any significant cooling of the conversion devices, let alone to cause primary cooling.

The fifth assertion is improper because it renders impossible the Examiner's subsequent contentions that Laing can be combined to cause cooling of the conversion devices "through thermal contact with an exterior of the support structure." The Examiner's rationale thus fails to support the pending rejection of Claim 1 because it relies on this fifth improper assertion.

The Examiner's rationale in support of the rejection of Claim 1 would fail to justify the pending rejection if it relied on even one significantly incorrect assertion. The rationale set forth in the Examiner's Answer relies upon an astonishing five different assertions that are all seriously improper, and thus utterly fails to justify or support the pending ground of rejection.

The support platform (32) of Cluff is entirely unsuitable as the support platform required in Claims 1. The disclosure of Cluff relied upon by the Examiner to support the rejection of Claim 1 over Cluff in view of Laing entirely fails to describe the features required by Claim 1, and accordingly does not render Claim 1 obvious.

Because the Examiner's contentions and assertions are so far from being correct, the previously submitted Appeal Brief takes pains to address not only the Examiner's contentions, but also all other disclosure in Cluff and Laing which might be argued as supporting a conclusion that Cluff in view of Laing renders obvious either of the Appellants independent claims. Disclosure exists in Cluff and Laing that comes much closer (than the disclosure pointed to by the Examiner) to supporting a rejection of Claim 1. Such disclosure is addressed in said Appeal Brief. This Reply Brief, however, only addresses the support upon which the Examiner again relies in the Examiner's Answer to support the rejection. Said Appeal Brief amply demonstrates that no other disclosure of Cluff and Laing renders obvious either Claim 1 or Claim 8.

For the record, Laing and Genequand together cannot remedy the failure of the disclosure of Cluff pointed to by the Examiner to render obvious Claim 1. Indeed, the Examiner's reliance on platform (32) of Cluff as the "support structure" required by Claim 1 is so confused as to preclude any sensible combination with other references.

Examiner's Mistaken Assertions In Respect Of Claim 8

As with Claim 1, a support structure is central to Appellant's independent Claim 8. Beginning at the first full paragraph of page 6 of the Examiner's Answer, the Examiner again relies upon the support structure (32) of Cluff as an example of the support structure required by Claim 8. The Examiner's reliance is misplaced for substantially similar reasons as are set forth above with respect to Claim 1. The following particular examples serve to illustrate that Cluff's support structure (32) is entirely incompatible with numerous features that are required for the support structure in Claim 8.

First and Second Mistaken Assertions. The Examiner asserts that Cluff discloses (underlining added for emphasis): "a) mounting a conversion device (43) at a mounting site within a support structure (32) having an elevation rotation axis." This is incorrect, first, because Cluff's support structure (32) does not have an elevation axis. It has only an azimuth axis, about which it is rotated to point to the compass direction (azimuth) of the sun (see, e.g., col. 3 lines 44-51, particularly line 51). The elevation rotation axes in Cluff's Figure 1 are in the collector panels (40), which are separate entities that are disposed on top of the support structure (32) of Cluff (see, e.g., col. 4 lines 52-61, col. 6 lines 3-10). The support structure (32) simply cannot remain flat upon the pond (which is held parallel to the earth's surface by gravity), and at the same time be rotated to point at the sun's elevation. That is why the collector panels (40) must be controlled to adjust for the elevation of the sun.

The Examiner's assertion is incorrect, second, because Cluff does not describe mounting conversion devices within the support structure (32). There is nothing "within the support structure (32)" except flotation and structural material (see col. 3 line 61 to col. 4 line 5)³. Far from being "within" the platform 32, the photovoltaic devices are in a different structure

³As noted in footnote 1, "Platform 36" (col. 3 line 61) is a typographical error, and should actually be "Platform 32". Figure 1 shows item 36 to be a motor, as it is described at, e.g., col. 3 line 49 and col. 4 line 65. The platform is properly item 32, as it is illustrated in Figures 1 and 7, and as it is correctly described at col. 3 lines 38 and 44, col. 4 line 41, and col. 6 lines 5-6 and 25.

(collector panel 40) which is "arranged on [the top of] the platform 32" (Figure 7, col. 4 lines 39-41).

Being inside a device that is disposed on the platform 32 is not the same as being disposed within the platform 32. Thus, the Examiner's assertions with respect to element (a) are mistaken for two important reasons. As such, these assertions cannot properly support the rejection of Claim 8.

Third Mistaken Assertion regarding Claim 8. The Examiner further asserts that Cluff discloses (emphasis added): "aligning the support structure (32) so that the elevation rotation axis (35, 45) is at an azimuth alignment angle with respect to a source of light energy (col.4; lines: 54-58)." As remarked upon above with respect to element (a), the support structure (32) has no elevation rotation axis, but only an azimuth rotation axis. Items 35 and 45 of Figure 1 are "moving mechanisms," not axes. Item 35 is a "platform moving mechanism" comprising a motor 36, pulley 38 and drive roller 37 (col. 3 lines 47-51), while item 45 is a motor that controls the elevation angle, though of the collector panels 40 that are mounted on top of the platform 32, rather than platform 32 itself (see Figure 1). It should be abundantly clear that a "moving mechanism" is not in any way an example of an axis of rotation. An axis of rotation is an imaginary line about which an object rotates. A moving mechanism is not any sort of imaginary line. Thus, this assertion is incorrect.

Fourth Mistaken Assertion regarding Claim 8. The Examiner asserts that Cluff discloses (emphasis added): "e) rotating the support structure (32) about the elevation rotation axis to align the incoming light axis toward the source of light energy (col.6; line: 3-10)."

As noted twice in the remarks set forth above, the support structure (32) does not have an elevation rotation axis. Instead, the collector panels 40 have elevation rotation axes; but the collector panels 40 are separate and distinct from support structure (32). The support structure 32, which is a large floating disk, would have to be lifted out of the water to be pointed toward the sun at any time other than high noon. Instead, the collector panels 40 are rotated about their elevation axes to point toward the sun as the sun's elevation changes. The collector panels 40, however, are not floating in the pond, as required. This assertion is thus also entirely incorrect.

Each of the errors noted above reflect a wholesale misunderstanding of the nature of support structure 32 as described in Cluff, as compared to the support structure required in Claim

8 (or in Claim 1). Due to this misunderstanding, the rationales set forth by the Examiner are extremely far from properly supporting the rejections of Claims 1 and 8 over Cluff in view of Laing. The Appellant's Appeal Brief addresses other ways in which Cluff and Laing might be asserted to render obvious any of the Appellant's claims. However, this Reply Brief exclusively addresses the rationale for support of the rejections that has been reiterated by the Examiner in the Examiner's Reply.

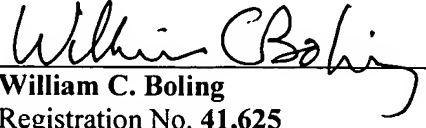
In summary, the Examiner's rationale in support of the rejections of Claims 1 and 8 over Cluff in view of Laing relies on a "support structure" that has almost none of the characteristics required by the support structure required in Claim 1 or Claim 8. It is therefore nearly impossible to debate finer points of distinction between the references and the claims with the Examiner. Although the Appellant's Appeal Brief first points out the impropriety of the Examiner's stated rationale, and then addresses such finer points, the Examiner's Answer entirely fails to address such finer issues remarked upon by the Appellant.

Conclusion

The Appellant's representative has repeatedly pointed out that the "support platform 32" of Cluff has no sensible relationship to the support platform required by any of the Appellant's pending claims (see, *e.g.*, the first full paragraph on page 9 of the Appeal Brief). In the Appeal Brief, the Appellant demonstrated that Cluff in view of Laing fails to render obvious any of the pending claims. In this Reply Brief, the Appellant only demonstrates the total failure of the Examiner to identify specific disclosure in Cluff and Laing that could render obvious either Claim 1 or Claim 8.

Respectfully submitted,

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